

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION**

WSOU INVESTMENTS, LLC D/B/A BRAZOS
LICENSING AND DEVELOPMENT,
Plaintiff

v.

JUNIPER NETWORKS, INC.

Defendant

Civil Action Nos.: 6:20-cv-00812-ADA
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6:20-cv-00814-ADA
6:20-cv-00815-ADA
6:20-cv-00902-ADA
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JURY TRIAL DEMANDED

**DEFENDANT JUNIPER NETWORKS, INC.'S
RESPONSE CLAIM CONSTRUCTION BRIEF**

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I. INTRODUCTION

Brazos is currently asserting six patents related to various computer networking technologies. Juniper has identified nine claim construction issues from five of those patents. Contrary to controlling Federal Circuit law, Brazos seeks to let the jury decide nearly all of these claim construction issues. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360, 1361-63 (Fed. Cir. 2008) (“When the parties raise an actual dispute regarding the proper scope of these claims, the court, not the jury, must resolve that dispute.”) (*citing Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff'd* 517 U.S. 370 (1996)). Juniper respectfully requests that the Court address these claim construction disputes and adopt its proposed constructions. As set forth below, Juniper’s proposed constructions follow settled law on claim construction, track the intrinsic evidence, are rooted in the patents’ own descriptions of their inventions, and are consistent with established meanings for terms of art.

II. U.S. PATENT NO. 7,382,781

In communications networks, data traffic is transmitted from sources to destinations between the nodes using links. Traffic may be unicast traffic, *i.e.*, traffic sent from one node to a single destination node, or multicast traffic, *i.e.*, traffic sent from one node to multiple destination nodes. The path of data through the network is determined by routing tables. The '781 patent states that a shortcoming of the prior art is that multicast traffic may be transmitted over links that are burdened by sensitive or high levels of unicast traffic. (2:15-30). In other words, prior art systems would route multicast traffic over links without considering whether those links were burdened by sensitive or high levels of unicast traffic.

The alleged invention relates to routing multicast traffic using a multicast routing table that is separate from the table used for unicast traffic. The multicast routing table accounts for and avoids links that are burdened by sensitive or high levels of unicast traffic. (4:14-21). For the

multicast routing table, a “centralized node” or “central manager” gathers information about which links are overburdened, and then constructs the multicast routing table to avoid those links. (4:33-36; 4:48-53). As the ’781 patent explains, a “central manager” is “intended to be the overall function that develops the multicast communications configuration in system 10” (4:27-29) and is “a processing device with sufficient knowledge of the state of the network to which it is coupled to provide the remaining function described herein.” (4:33-36).

A. “centralized node for coupling into a computer network” (Claim 1)

Brazos’ Construction	Juniper’s Construction
Plain and ordinary meaning, preamble not limiting	the “centralized node” term in the preamble is limiting, and the “identifying,” “constructing,” and “communicating” steps are performed by the “centralized node”

The Federal Circuit recently reaffirmed the long-standing rule that where the preamble provides the only structure for a claimed apparatus, the structure in the preamble must be limiting. In *SIMO Holdings Inc. v. Hong Kong uCloudlink Network Technology Limited*, the Federal Circuit explained, “[i]n supplying the only structure for the claimed apparatus, the preamble language supplies ‘essential structure,’ and the body does not define ‘a structurally complete invention’—which are two key reasons for preamble language to be deemed limiting.” 983 F.3d 1367, 1375 (Fed. Cir. 2021). The Federal Circuit explained that “where the body identifies nothing but functional properties of the claimed apparatus,” and the preamble provides the only structural components, the preamble is limiting. *Id.* Here, as in *SIMO Holdings*, the preamble of claim 1 provides the only structure of the apparatus claim – a “centralized node” – and that structure therefore must be limiting.

Claim 1 is an apparatus claim that is directed to a “centralized node” having certain functional characteristics:

1. *A centralized node* for coupling into a computer network along which network traffic flows between a plurality of nodes in a form of packets, programmed to perform the steps of:

identifying requirements of unicast packet traffic along the network, wherein the unicast packet traffic identifies a first traffic configuration along the network; and

constructing a second traffic configuration along the network, differing from the first traffic configuration, wherein the second traffic configuration is for routing multicast packet traffic along the network; and

communicating routing information representing at least a portion of the second traffic configuration to each node in the plurality of nodes, wherein each node in the plurality of nodes routes multicast packet traffic in response to the at least a portion of the second traffic configuration.

The only structural component of this apparatus claim is the “centralized node.” The language following the recitation of “centralized node” has two non-structural parts. First, the phrase “for coupling into a computer network along which network traffic flows between a plurality of nodes in a form of packets” describes the intended functional arrangement of the “centralized node.” Second, the phrases “programmed to perform the steps of” “identifying requirements of unicast packet traffic . . . ,” “constructing a second traffic configuration . . . ,” and “communicating routing information . . . ” define functional characteristics of the “centralized node.” In short, the “centralized node” is the *only* structure in this *apparatus* claim and therefore must be limiting. *See SIMO Holdings Inc.*, 983 F.3d at 1375; *see also Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (“[A] preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.”) (internal quotation marks omitted).

Moreover, the “preamble” of claim 1 provides antecedent basis for limitations throughout the body of the claim. Specifically, the preamble recites, “A centralized node for coupling into *a computer network*” (emphasis added). The term “a computer network” provides antecedent basis for the term “the network” that appears in the two limitations that follow. Accordingly, the

preamble is limiting for this reason as well. *See In re Fought*, 941 F.3d 1175, 1178 (Fed. Cir. 2019) (“We have repeatedly held a preamble limiting when it serves as antecedent basis for a term appearing in the body of a claim.”).

Brazos’ arguments that “centralized node” is not limiting ignore the fact that the only structural component in apparatus claim 1 is the “centralized node” itself. (Br. at 3-4). Accordingly, Brazos’ arguments should be rejected as contrary to Federal Circuit precedent. *See, e.g., SIMO Holdings*, 983 F.3d at 1375.

B. “second traffic configuration” (claims 1 and 18)^{1,2}

Brazos’ Construction	Juniper’s Construction
Plain and ordinary meaning	a multicast routing configuration constructed by the centralized node (claim 1) a multicast routing configuration constructed by a centralized node (claim 18)

The parties’ dispute centers on whether the “second traffic routing configuration” recited in independent claims 1 and 18 is constructed by a “centralized node.”³

There can be no dispute that Juniper’s construction is correct for claim 1. Indeed, claim 1 *explicitly requires* a multicast routing configuration to be constructed by a centralized node. Claim 1 states: “*A centralized node . . . programmed to perform the steps of . . . constructing a second traffic configuration . . . wherein the second traffic configuration is for routing multicast packet traffic.*” Accordingly, Juniper’s construction should be adopted.

¹ This term also appears in claim 9, which depends from independent claim 1.

² In its brief, Brazos argues that the term “constructed” is more appropriate than the term “developed” in Juniper’s proposed construction. (Br. at 6-7). In an effort to reduce the number of disputes, Juniper has modified its construction to use the term “constructed.”

³ The parties agree that the second routing configuration is limited to a configuration for multicast routing. (Br. at 5).

Claim 18 also requires a multicast routing configuration, but does not state that the multicast routing configuration is constructed by a centralized node. However, where a patent repeatedly and uniformly describes a limitation as a requirement of the entire invention, as is the case here, the claims should be limited accordingly. *See InterDigital Commc'ns, Inc. v. U.S. Int'l Trade Comm'n*, 601 F. App'x 972, 977–78 (Fed. Cir. 2015) (rejecting the argument that the claim construction improperly limited the claim term by relying on statements concerning only a preferred embodiment since “the entire invention is described by reference to a preferred embodiment, the argument that the limitation is raised in the context of the preferred embodiment is less persuasive.”); *Wireless Protocol Innovations, Inc. v. TCT Mobile, Inc.*, 771 F. App'x 1012, 1018 (Fed. Cir. 2019) (“The repetition of that language in sections meant to describe the overall invention, together with the uniformity of the specification on this point, makes clear that ‘no upstream data’ is not merely a preferred embodiment for the grant pending absent state, but rather a requirement.”); *Wang Labs., Inc. v. America Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999) (limiting the claims to the only embodiment described in specification, noting that “[t]he usage ‘preferred’ does not of itself broaden the claims beyond their support in the specification.”); *Respironics, Inc. v. Invacare Corp.*, 303 F. App'x 865, 871 (Fed. Cir. 2008) (affirming the district court’s construction of “selected higher and lower pressure magnitudes” to require that the pressure magnitudes be “preselected” based on the specifications’ disclosure because “preselection of higher and lower pressure magnitudes is not merely a preferred embodiment; it is the patents’ only embodiment.”).

A “centralized node” that constructs the “second traffic configuration” is the entire invention of the ’781 patent. It is the only embodiment disclosed in the ’781 patent, and the specification repeatedly and uniformly makes clear that the “second traffic configuration” is

constructed by the “centralized node.” First, the Abstract of the ’781 patent states that the second traffic configuration is constructed by the centralized node:

A centralized node (CM) for coupling into a computer network (10) along which network traffic flows between a plurality of nodes (PEX) in a form of packets. The centralized node is programmed to perform the step of identifying requirements of unicast packet traffic (10, FIG. 1 a) along the network, where the unicast packet traffic identifies a first traffic configuration along the network. The centralized node is also programmed to perform the step of constructing a second traffic configuration (10, FIG. 1 b) along the network, differing from the first traffic configuration, wherein the second traffic configuration is for routing multicast packet traffic along the network.

(Abstract).

Second, the ’781 Summary of the Invention states that the second traffic configuration is constructed by the centralized node: “In the preferred embodiment, there is a *centralized node* for coupling into a computer network along which network traffic flows between a plurality of nodes in a form of packets” and “[t]he *centralized node* is also programmed to perform the step of *constructing a second traffic configuration* along the network, differing from the first traffic configuration, wherein the second traffic configuration is for routing multicast packet traffic along the network.” (2:38-49). *Wireless Agents LLC v. Sony Ericsson Mobile Commc’ns AB*, 189 F. App’x 965, 967 (Fed. Cir. 2006) (citing 37 C.F.R. § 1.73 (2004)) (construing the term in accordance with the “Summary of the Invention,” as the characterization therein is “not merely referring to a preferred embodiment; rather, as part of the ‘Summary of the Invention,’ it is ‘commensurate with the invention as claimed.’”).

Third, the Detailed Description of the Invention only describes a centralized node or manger as constructing the second traffic configuration. *See, e.g.*, (4:45-47) (“in the preferred embodiment, central manager CM develops the second overall routing configuration based on various considerations as detailed below.”); (5:5-7) (“[i]n the preferred embodiment, the second overall routing configuration, which recall routes multicast communications, is constructed by

central manager CM. . . .”); (5:61-63) (“the preferred embodiment central manager CM constructs the second overall routing configuration”); (6:51-52) (“Once central manager CM develops the second overall routing configuration.”). Indeed, the repeated consistent characterization of “second traffic configuration” throughout the ’781 patent “has decisive significance in identifying the proper construction of a claim term.” *Wireless Protocol Innovations, Inc.*, 771 F. App’x at 1018. Because a “centralized node” that constructs the “second traffic configuration” is at the core of the alleged invention and there is now broader description of how the “second traffic configuration” could be constructed in the specification, this term should be limited accordingly. *See InterDigital Commc’ns*, 601 F. App’x at 980 (limiting term to embodiment in specification when there was “no discussion of a broader meaning for the term other than boilerplate language that ‘it is understood by those skilled in the art that the invention may be practiced with modifications to the embodiment that are within the scope of the invention as defined by the following claims.’”).

The terms “second traffic configuration” in claims 1 and 18 should be construed to have the same meaning for another reason as well. Specifically, claim terms are “presumed to have the same meaning throughout all of the claims in the absence of any reason to believe otherwise.” *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012); *see also Fin Control Sys. Pty, Ltd. v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001) (“[W]e begin with the presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims.”). As explained above, there is no question that the “second traffic configuration” in claim 1 is constructed by the “centralized node” as the claim language expressly includes this requirement. And since there is

no reason the term “second traffic configuration” in claim 18 should have a different meaning than it has in claim 1, it should be given the same construction.

III. U.S. PATENT NO. 7,518,990

The '990 patent is directed to a technique used in optical networks for determining routes of traffic that utilize “virtual concatenation.” (1:8-13). Virtual concatenation was a “well known” technique at the time of the invention. (1:17). This technique allows a single transmission stream to be divided into multiple data streams, which may be “transmitted over diverse routes through the network from the source node to a given destination node.” (1:32-36). These data streams form a so-called “virtually-concatenated group (VCG),” where each data stream corresponds to a member of the VCG. (1:29-32). After the members of the VCG are transmitted over the network to a destination, the streams are “recombine[d]” in order to “reconstruct” the originating transmission. (1:29-36).

The '990 patent purports to provide “improved routing algorithms for determining routes for virtually-concatenated data traffic, so as to limit the impact of route failures on the data traffic, [or] to facilitate traffic restoration in the event of route failure.” (2:33-38). In particular, the '990 patent focuses on limiting the amount of bandwidth affected in the event of a single link failure. (7:3-12). For example, the specification envisions one possible scenario where “service providers may not be willing to provide additional bandwidth in order to protect data services,” and may thus be “interested in limiting the extent of the damage on failures.” (7:23-30). To that end, the '990 patent is directed to specific routing algorithms that process representations of a network, and output a set of routes for members of a virtually-concatenated group. (7:31-43, 9:16-22).

- A. **“routing algorithm determines the routes in a manner that ensures that failure of a single link in the network does not affect more than a designated maximum amount X of a bandwidth B of the traffic demand” (claims 1, 17, 18)**

Brazos’ Construction	Juniper’s Construction ⁴
Plain and ordinary meaning, not indefinite	“routing algorithm determines the routes in a manner that ensures that failure of a single link in the network does not affect more than a maximum amount X of a bandwidth B of the traffic demand, where X is a specific input to the claimed routing algorithm”

Juniper initially proposed that this term is indefinite. Juniper’s position was based on the claim’s inclusion of the term “designated maximum amount X.” Without sufficient guidance from the specification, this term is indefinite. Indeed, courts have recognized that terms like “maximum” and “minimum” are indefinite when they lack objective boundaries. *See, e.g., Berkheimer v. HP Inc.*, 881 F.3d 1360, 1363 (Fed. Cir. 2018) (concluding that “minimal redundancy” was indefinite because there was no objective baseline for “how much is minimal”); *Ultravision Techs., LLC v. Holophane Eur. Ltd.*, 2020 WL 6271231, at *17-19 (E.D. Tex. Oct. 26, 2020) (finding term indefinite because the claims did not specify which guidelines to use in order to determine a minimal/minimum amount of illumination); *Power Integrations, Inc. v. ON Semiconductor Corp.*, 2018 WL 5603631, at *12-13 (N.D. Cal. Oct. 26, 2018) (concluding that “maximum period of time” was indefinite term of degree lacking objective boundaries).

In its Opening Brief, Brazos argued that this term is definite. Brazos identified for the first time intrinsic evidence that it contends provides objective boundaries for “designated maximum amount X,” and presented a supporting declaration from its expert, Dr. Nettles. Specifically, Brazos asserts that the “designated maximum amount X” is “*a specific input to the claimed routing algorithm*” as set forth in the specification of the ’990 patent. (Br. 9 (emphasis added);

⁴ Juniper initially proposed that this term be held indefinite.

see also Br. 10 (describing “designat[ing] as an input to a routing algorithm a maximum amount of bandwidth that may be affected by a failure”). Further, Brazos’ expert Dr. Nettles opines that it “[i]t would be clear to a person of ordinary skill in the art from the claims and the specification that **this phrase refers to an input to the routing algorithm.**” (Nettles Decl. ¶ 27 (emphasis added)). Further, Dr. Nettles asserts that the algorithm provided in the specification would use a flow routing algorithm “to calculate ‘a minimum-cost feasible flow of F units of flow’ necessary to ensure that no more than 30% of the traffic demand is impacted by the failure, as required by the input ‘designated maximum amount X.’” (Nettles Decl. ¶ 28). In short, Brazos and Dr. Nettles posit that a “designated maximum amount X” is bounded by its function—*i.e.*, a specific input limiting the amount of traffic that may be affected upon failure.

In view of the boundary identified by Brazos and Dr. Nettles in the specification, Juniper agrees that the term “designated maximum amount X” is not indefinite so long as it is construed in view of this boundary. Courts have recognized that terms of degree may be saved from a finding of indefiniteness when they are limited to the objective boundaries disclosed in the specification. *See, e.g., Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1396-97 (Fed. Cir. 2016) (concluding that term of degree was “save[d] . . . from indefiniteness” by the disclosure of a particular projectile in the specification, and limiting claim to that disclosure); *see also One-E-Way, Inc. v. Int’l Trade Comm’n*, 859 F.3d 1059, 1063-64 (Fed. Cir. 2017) (concluding that “virtually free from interference” was a sufficiently definite term of degree, but was interpreted to mean “prevent[ing] one user from eavesdropping on another,” since specification repeatedly highlighted this feature); *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1290-93 (Fed. Cir. 2017) (concluding that “near” was a term of degree, but examples from specification indicated

that the term “requires the HDL code and its corresponding circuit analysis to be displayed in a manner that physically associates the two”).

Accordingly, Juniper proposes that this term should be construed in light of the objective boundaries set forth in the specification. Specifically, Juniper proposes the following construction: “routing algorithm determines the routes in a manner that ensures that failure of a single link in the network does not affect more than a maximum amount X of a bandwidth B of the traffic demand, where X is a specific input to the claimed routing algorithm.”

B. “routing algorithm determines the routes in a manner that ensures that failure of a single link in the network affects a minimum amount of a bandwidth B of the traffic demand” (claim 6)

Brazos’ Construction	Juniper’s Construction ⁵
Plain and ordinary meaning, not indefinite	“wherein the routing algorithm determines the routes in a manner that ensures that failure of a single link in the network affects the smallest possible amount of a bandwidth B of the traffic demand”

As with the previous term, Juniper initially proposed that this term is indefinite, based on the term’s inclusion of the word “minimum.” Without guidance from the specification, the term could conceivably represent *any* amount of bandwidth. Indeed, courts have routinely recognized that where terms of degree like “minimum” lack objective boundaries, they are indefinite. *See, e.g., Berkheimer*, 881 F.3d at 1363 (finding “minimal redundancy” indefinite term of degree); *Ultravision*, 2020 WL 6271231, at *17-19 (finding minimal/minimum indefinite terms of degree); *Secor View Techs. LLC v. Nissan N. Am., Inc.*, 2013 WL 6147788, at *4-5 (D.N.J. Nov. 21, 2013) (concluding that “minimize lateral protuberance from the side of the vehicle” was indefinite because “minimize” was a term of degree and the patent did not provide a standard for measuring that degree).

⁵ Juniper initially proposed that this term be held indefinite.

In arguing this term is definite, Brazos again identified for the first time intrinsic evidence from the specification, and also submitted a declaration from its expert, Dr. Nettles. Brazos asserts that exemplary routing algorithm β “evaluates multiple possible routing sets and determines which results in a failure having the smallest possible impact on bandwidth.” (Br. 13). Dr. Nettles reaches the same conclusion, stating that algorithm β uses “the algorithm α discussed above to determine routing sets for multiple values of Y,” and “operates to identify the smallest value of Y.” (Nettles Decl. ¶ 32). In other words, in Brazos’ and Dr. Nettles’ view, the specification provides that “minimum” refers to the smallest possible amount of bandwidth that can possibly be affected.

Based on the boundary identified by Brazos and its expert, Juniper agrees the term “minimum amount” is not indefinite, so long as it is construed in light of that boundary. The Federal Circuit has consistently recognized that a patent’s written description may provide the appropriate boundaries to terms of degree. *See, e.g., One-E-Way*, 859 F.3d at 1063-64 (concluding that “virtually free from interference” meant “prevent[ing] one user from eavesdropping on another”); *Mentor Graphics*, 851 F.3d at 1290-93 (concluding that “near” meant that “the HDL code and its corresponding circuit analysis to be displayed in a manner that physically associates the two”); *Liberty Ammunition*, 835 F.3d at 1396-97 (concluding that term of degree was limited to particular round referenced in specification).

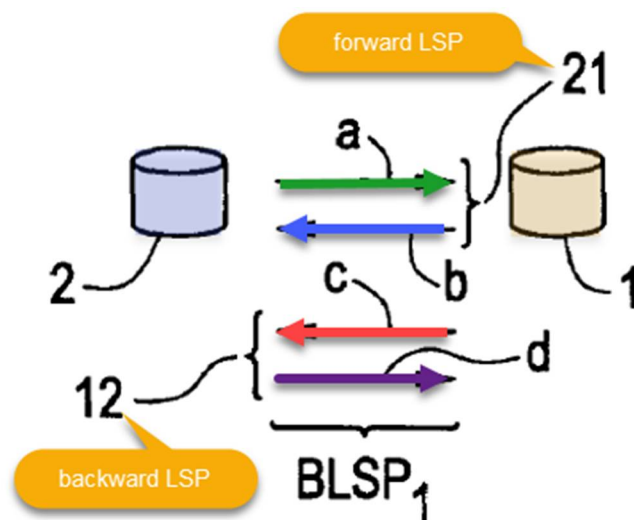
Accordingly, Juniper proposes that this term should be construed in light of the objective boundaries set forth in the specification. Juniper proposes the following construction: “wherein the routing algorithm determines the routes in a manner that ensures that failure of a single link in the network affects the smallest possible amount of a bandwidth B of the traffic demand.”

IV. U.S. PATENT NO. 7,596,140

Multiprotocol Label Switching (MPLS) networks forward data across predetermined, unidirectional paths called “label switched paths” or “LSPs” for short. (1:6-10). In order to establish an LSP, two devices at opposite ends must exchange “path” and “reservation” messages. (1:9-10, 2:36-44).

The '140 patent admits that unidirectional LSPs have long been known, and that a “newer standard” named “Generic MPLS” (“GMPLS”) provides techniques for creating bi-directional LSPs. (1:9-25). However, the patent alleges that GMPLS has “drawbacks” and that traditional (non-generalized) MPLS devices were not able to establish bi-directional LSPs. (*Id.*) Thus, it purports to teach a system and method where two unidirectional LSPs are established in opposite directions (a “forward” and a “backward” direction) and then bundled together to form a bidirectional LSP. (1:30-37).

Figure 1 of the '140 patent illustrates the formation of a bi-directional LPS between two “MPLS devices” in an “MPLS network”:



(Fig. 1 (annotated)); *see also* (2:27-21, 2:23-30). A first router (LER 2) sends a forward path message (green arrow) to a second router (LER 1), and receives a forward reservation message

(blue arrow) in response, thereby activating the forward LSP. (2:36-44). Similarly, the backward LSP is then established by sending a backward path message from the second router to the first router (red arrow), and receiving a backward reservation message (purple arrow) in response. (2:45-60). The backward LSP is created and bundled with the forward LSP automatically to create a bi-directional LSP. *Id.*

A. “a network device” (claims 1–6, 13, 15, 16–19, 34–38)

Brazos’ Construction	Juniper’s Construction
Plain and ordinary meaning	“an MPLS (as opposed to GMPLS) device”

The parties’ dispute boils down to whether the claimed “network device” is an MPLS device as proposed by Juniper, or whether it may be a GMPLS device as proposed by Brazos. As shown below, the intrinsic evidence makes clear that the network device of the claimed invention is an MPLS device. It also makes clear that the invention cannot encompass a GMPLS device.

i. The Specification Unambiguously States That The Network Device Is An MPLS Device And Disclaims The Use Of A GMPLS Device

The ’140 patent claims “a network device” that is capable of setting-up a bi-directional LSP.⁶ At the time the ’140 patent was filed, MPLS and GMPLS devices could establish an LSP. However, the Background of the Invention claims that only devices running GMPLS were able to set-up bi-directional LSPs. (1:13-16) (explaining that GMPLS was a “newer standard” that “sets forth techniques for creating LSPs in both directions, so called ‘bi-directional’ LSPs.”) The patent criticizes GMPLS as having “*drawbacks*,” and explains that “GMPLS techniques *are not compatible with MPLS-based devices*.” (1:17-21); *see also* (1:24-26) (“[t]he inability of MPLS-based devices to set up LSP[s] in both directions simultaneously *prevents them from using GMPLS techniques*.”) (emphasis added). Indeed, GMPLS devices operate under a different set

⁶ A LSP is a predetermined data path through a network from a first router to a second router, and two LSPs in opposite directions are known as a “bi-directional LSP.”

of rules than MPLS devices. (Br., Ex. 8 at 3-5). Accordingly, the inventors of the '140 patent purported to invent a new “MPLS-based device” (as opposed to a GMPLS device) that could establish bi-directional LSPs in an “MPLS networks.” (2:7-21) (describing “MPLS network” with “MPLS devices 1-3”); (2:55-60) (purported invention “carried out by MPLS-based devices”); (Fig. 1A (MPLS network)). As such, in every instance the patent describes the “network device” as an “MPLS” device in an “MPLS” network. (*Id.*)

These characterizations of the invention as an MPLS-based device are not limited to describing preferred embodiment. Rather, they more broadly describe the invention, as evidenced from the fact that they appear in the section entitled “Background of the *Invention.*” (1:5-26) (emphasis added). Such statements in the specification characterizing the “invention” define the scope of the claims. For example, in *Honeywell Int’l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006), the patentee argued that the language of the disputed claim term—“fuel injection system component”—does not specifically recite that the component must be a “fuel filter,” and therefore should not be limited as such. *Id.* The Federal Circuit rejected the patentee’s argument. *Id.* It explained that because the specification characterizes the “invention” or “the present invention” as a “fuel filter,” it is appropriate to limit the disputed term to a “fuel filter.” *Id.* “The public is entitled to take the patentee at his word and the word was that the invention is a fuel filter.” *Id.* See also *Microsoft Corp. v. Multi-Tech Sys.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004) (“In light of those clear statements in the specification that the invention (‘the present system’) is directed to communications ‘over a standard telephone line,’ we cannot read the claims. . . to encompass data transmission over a packet-switched network such as the Internet.”). Just as in *Honeywell* and *Microsoft*, the '140 patent’s characterization of the “invention” as a MPLS device, precludes construing the claimed network device from encompassing a GMPLS device.

In addition to making clear that the claimed invention is a MPLS device, the patent's statements criticizing GMPLS as having "drawbacks" and being incompatible with MPLS devices (1:6-26) clearly teaches that the network device is *not* a GMPLS device (which is precisely what Brazos' proposed construction seeks to recapture). The Federal Circuit has held that "[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification might be considered broad enough to encompass the feature in question." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001). In *SciMed*, for example, the Federal Circuit explained that the specification of the patents-in-suit "indicate[] that the claimed invention uses coaxial, rather than side-by-side lumens." *Id.* at 1342. Thus, the Federal Circuit explained that the "specification lead[s] to the inescapable conclusion that. . . the asserted claims read only on catheters having coaxial lumens." *Id.* Just as in *SciMed*, the '140 patent's explanation that the invention uses a MPLS, rather than a GMPLS, device leads to the inescapable conclusion that the claimed invention must be limited to MPLS devices.

Brazos admits that "the '140 patent describes that the disclosed invention was originally developed in the context of 'Multi-Protocol Label Switched (MPLS) networks.'" (Br. at 15). In fact, Brazos even acknowledges that that "inventors of the '140 patent, therefore, sought to bring GMPLS-like bidirectional LSP functionality ... *to MPLS*." (Br. at 16) (emphasis added). But Brazos nevertheless argues that Juniper's construction should not be adopted for three reasons.

First, Brazos contends that the patent does not disclaim GMPLS devices from its scope. (Br. 15). To the extent Brazos is suggesting that some type of explicit redefinition or disavowal is necessary for Juniper's construction to be adopted, this argument is incorrect. *See, e.g., Trs. of*

Columbia Univ. v. Symantec Corp., 811 F.3d 1359, 1363-1364 (Fed. Cir. 2016) (“[A] patent applicant need not expressly state ‘my invention does not include X’ to indicate his exclusion of X from the scope of his patent.”). The intrinsic record clearly teaches that the claimed “network device” is a MPLS device and not a GMPLS device, as discussed above, and Brazos should not be permitted to divorce the claims from what the specification indicates the inventors actually invented (*i.e.*, an MPLS device). *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011) (construing the claim limitation in question to “tether the claims to what the specifications indicate the inventor actually invented.”).

Second, Brazos argues that the term “network device” does not require any construction because the claim recites limitations performed by the network device. (Br. at 16). However, it is undisputed that the term “network device” is a separate *limitation* of the patent. (Br. at 15, n.17). Brazos’ attempt to evade a construction by suggesting the term is immaterial is contrary to basic principles of patent law. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997) (“Each element contained in a patent claim is deemed material to defining the scope of the patented invention.”); *see also Flex-Rest, LLC v. Steelcase, Inc.*, 455 F.3d 1351, 1361 (Fed. Cir. 2006) (“Flex-Rest’s attempt to avoid the sidewall limitation by characterizing it as ‘inconsequential’ disregards the basic patent law doctrine that every limitation of a claim is material.”). Here, the intrinsic record makes clear that this separate limitation should be construed as an MPLS device.

Finally, Brazos presents attorney argument and a citation to a press release from Tokyo, Japan, purporting to describe “the world’s first Generalized Multi-Protocol Label Switching (GMPLS) signaling interoperability test.” (Br. at 16-17, Ex. 6). Brazos argues that this article demonstrates that there is not a “strict divide between devices that have MPLS functionality and devices that have GMPLS functionality.” (Br. at 16-17). Brazos’ argument misses the mark. The

'140 patent does not include any discussion of a network device that operates using MPLS and GMPLS. Rather, the '140 patent discloses that the inventors considered MPLS and GMPLS to be incompatible with one another. (1:7-25). In fact, Brazos' extrinsic evidence confirms that the inventors were only in possession of an MPLS device—they were not in possession of hybrid GMPLS/MPLS device because such technology was not yet in existence or was at most nascent technology. (Br. 16, Ex. 6) (“world’s first... test” just months before the '140 patent was filed). Construing the network device broadly to cover GMPLS devices would thus render the claim invalid for lack of written description support and enablement. *See Whittaker Corp. by Technibilt Div. v. UNR Indus., Inc.*, 911 F.2d 709, 712 (Fed. Cir. 1990) (“claims are generally construed so as to sustain their validity, if possible.”); *see also Chiron Corp. v. Genentech Inc.*, 363 F.3d 1247, 1254 (Fed. Cir. 2004) (“Nascent technology [] must be enabled with a ‘specific and useful teaching.’”); *Rivera v. Int’l Trade Comm’n*, 857 F.3d 1315, 1319-21 (Fed. Cir. 2017) (“specification did not provide the necessary written description support for the full breadth of the asserted claims,” where the claims were broadly drawn to a “container . . . adapted to hold brewing material” while the specification disclosed only a “pod adapter assembly” or “receptacle” designed to hold a “pod”). The Court should adopt Juniper’s construction.

B. “the device” (claims 21–24, 31, 33)

Brazos’ Construction	Juniper’s Construction
Plain and ordinary meaning, not indefinite	indefinite to the extent this term is not indefinite, then it should be construed the same as the term “a network device.”

A claim is indefinite if a term does not have proper antecedent basis and its meaning is not reasonably ascertainable to a person of skill in the art. *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008) (“[A] claim could be indefinite if a term does not have proper

antecedent basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable.”); *In re Packard*, 751 F.3d 1307, 1310, 1314 (Fed. Cir. 2014) (affirming finding of indefiniteness based on limitations that “lacked an antecedent basis”); *Sol IP, LLC v. AT&T Mobility LLC*, 2020 WL 60141, *11-12 (E.D. Tex. 2020) (“the Court finds that the lack of antecedent basis renders dependent Claim 7 indefinite because the meaning of the recited ‘sets of bits’ is not reasonably ascertainable in the light of the intrinsic evidence”).

Here, it is undisputed that the term “the device,” which first appears in claim 21 (upon which claims 22-24, 31 and 33 depend), lacks antecedent basis:

21. A method for creating a bi-directional LSP comprising the steps of:

generating and sending an independent backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and...

(Claim 21) (emphasis added).

Brazos nevertheless contends that the term is not indefinite because “an LSP is a path that traffic flows along in a network between two ‘nodes,’” and a person of ordinary skill in the art could reasonably ascertain that “the device” refers to “the node at the opposite end of the LSP from ‘the source.’” (Br. at 18-19). But the patent discloses that a “device” may be a “source device,” an “intermediate device,” or a “destination device,” and that some devices may serve as both a source and destination device. (2:13-16) (“MPLS network 100 typically comprises a number of intermediate devices (not shown) between devices 1 and 2”); (2:10-13) (“In some cases, each device 1-3 may operate as both a source and destination device.”). There is nothing in the claims that states “the device” must be at the end of the LSP, let alone whether it is, for instance, a destination device, an intermediate device, or a combination source and destination device. The

Court should decline Brazos' invitation to redraft the claims to correct this ambiguity. *Sol IP*, 2020 WL 60141, *11-12 (refusing to correct lack of antecedent basis because "[i]t would be improper for the Court to redraft the claim language to correct this ambiguity") (citing *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004)). Claim 21 and its dependent claims are thus indefinite.

To the extent the Court finds that "the device" is not indefinite, the term should receive the same construction as the term "a network device" in the prior section. Brazos contends that the "the device" is "a network device," which, as explained above is an MPLS, not GMPLS, device.

C. "by itself generate ... a backward path [request / reservation] message" (claims 1, 16) / "generating ... an independent backward path [request / reservation] message" (claims 21, 23) / "by a network device generating ... a backward path reservation message" (claim 34)

Brazos' Construction	Juniper's Construction
Plain and ordinary meaning	"generate a backward path [request / reservation] message without using specific routing information provided in the forward request, such as bandwidth designations"

"[A] patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution." *Comp. Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1374 (Fed. Cir. 2008). "A patentee could do so, for example, by clearly characterizing the invention in a way to try to overcome rejections based on prior art." *Id.* (citations omitted); *see also Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1372-73 (Fed. Cir. 2005) ("[w]here an applicant argues that a claim possesses a feature that the prior art does not possess in order to overcome a prior art rejection, the argument may serve to narrow the scope of otherwise broad claim language.").

Here, the terms under construction require that a network device "by itself" or "independent[ly]" generate "a backward path [request / reservation] message." The applicant

added the “by itself” and “independent[ly]” limitations during prosecution to overcome two prior art references: So (Ex. J) and Enoki (Ex. I). In doing so, the applicant expressly stated that the amendments were “intended to exclude from the claimed subject matter embodiments in which the setup [*i.e.*, forward] request provides specific routing information for the backward path,” and then proceeded to distinguish So and Enoki on the basis that they used routing information, such as “bandwidth designations,” to generate the backward request and reservation messages. The applicant’s statements are a clear and unmistakable disavowal of claim scope.

More specifically, the originally filed claims of the ’140 patent did not include the “by itself” and “independent[ly]” limitations, and were rejected by the Examiner over So. (Ex. A, original claims). But after the applicant’s attempts to distinguish the original claims from the So prior art were unsuccessful (Ex. D, 8-06-2007 Arguments & Remarks & Ex. F, 9-18-2007 Final Office Action), the applicant was forced to amend the claims to include the “by itself” and “independent[ly]” limitations (Ex. G, 12-01-2007 List of Claims). For example, claim 1 was amended as follows:

1. (CURRENTLY AMENDED) A network device operable to:

by itself generate and send a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

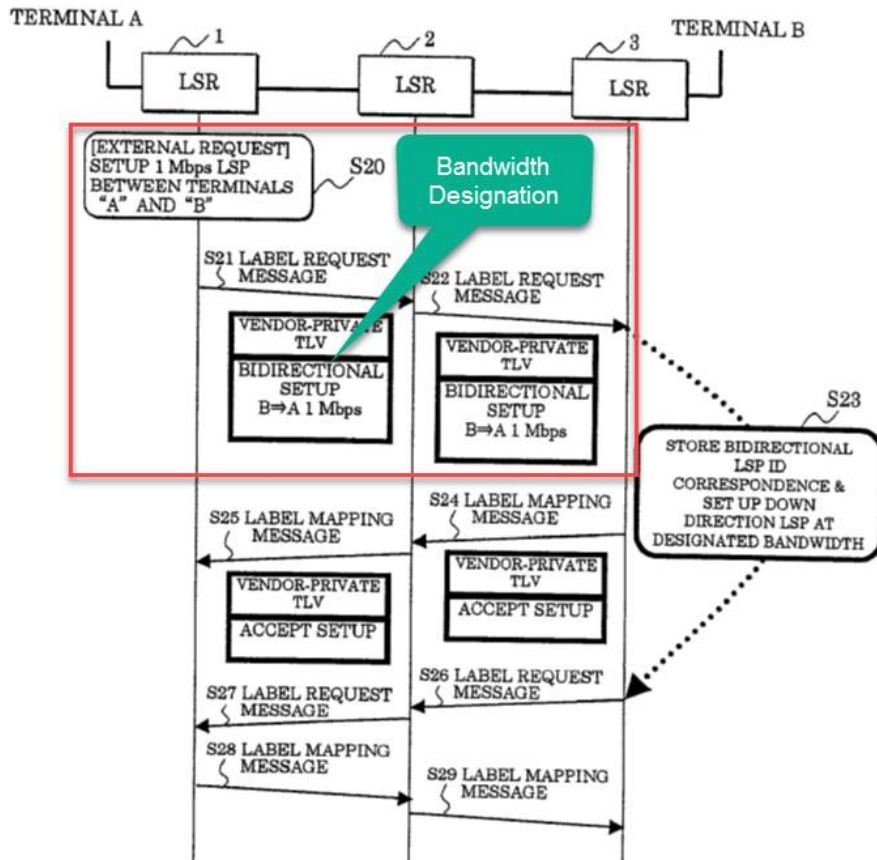
(*Id.*)

The applicant relied upon the “by itself” and “independent[ly]” limitations to overcome the So prior art. The applicant stated that the limitations were added to exclude embodiments where routing information in the forward request is used to generate the backward path:

The Applicant contends that the claim amendments reflected above are ***intended to exclude from the claimed subject matter embodiments in which the setup request provides specific routing information for the backward path.***

(Ex. G, 12-01-2007 Remarks at 17). The applicant also argued that So did not meet the newly added limitations because So's routing device generated a backward path using routing information provided in the forward request. (*Id.* at 15) ("So teaches that the initial request provides the reverse path routing information"); (*Id.* at 16) (So "cannot fairly be characterized as providing for the 'independent' generation of the 'backward path' as recited in the pending claims" because it "merely utilizes the routing information from the setup request and does not provide for any alternative routing path or routing path source(s)."). The Examiner ultimately accepted the applicant's arguments and concluded that So fails to teach the "by itself" and "independent[ly]" limitations. (Ex. B, 1-24-2008 Office Action at 2) (Examiner stating that "So fails to specifically teach that the device by itself generates a backward path request message"); (*Id.* at 6) (Examiner concluding So fails to teach the independently limitation).

After withdrawing the rejection based on So alone, the Examiner issued a new rejection contending that the "by itself" and "independent[ly]" limitations were disclosed by Enoki. Figure 15 of Enoki is reproduced below:



(Ex. I, Enoki at Fig. 15). In Enoki, LSR 1 sends a forward request (red box) to LSR 3 that includes a “designated bandwidth” for the bidirectional LSP of 1 Mbps (green callout). (*Id.*) LSR 3 then generates the backward path using the designated bandwidth information in the forward request, as shown in box S23. (*Id.*)

Just as with So, the applicant distinguished Enoki by arguing that the “by itself” and “independent[ly]” limitations require generating the backward path without using routing information in the forward request. Specifically, the applicant argued that “Enoki, like So, provides for a terminal device capable of transmitting a backward path based on the ‘bidirectional setup’ [*i.e.*, forward request] information received from LSR 1.” (Ex. C, 4-28-2008 Remarks at 16-17). The applicant then pointed to paragraphs 143-145 of Enoki, and emphasized (with bold

italics) Enoki's teaching that LSR 3 uses "bandwidth designations" transmitted in the forward request message to generate the backward path:

[0143] It is to be noted that FIG. 15 shows a sequence of the bidirectional LSP setup message in the embodiment (2). In case an external request S20 of setting up 1 Mbps LSP between the terminals "A" and "B" is made to the LSR 1, the ***LSR 1 transmits a label request message S21 in which the bidirectional setup and the down direction (from terminal "B" to "A") bandwidth designation of 1 Mbps are set*** in the vendor-private TLV to the LSR 2.

[0144] The LSR 2 which has received the message S21 transmits the label request message S22 similar to the message S21 to the LSR 3.

[0145] The LSR 3 performs the process for the bidirectional LSP setup ***based on the vendor-private TLV within the label request message S22***. At this time, the LSR 3 stores the correspondence of the bidirectional LSP ID's and performs a down direction LSP setup S23 ***with the designated bandwidth (1 Mbps)***.

Enoki, paras. [0143]-[0145] (emphasis added).

(*Id.*) In other words, the applicant identified "bandwidth designations" as one example of routing information that may not be used to generate the backward path. The applicant repeated this argument in a subsequent office action and then an appeal brief, after which the Examiner relented and withdrew the rejection. (Ex. E, 9-11-2008 Remarks at 15 (applicant arguing that Enoki does not disclose a router "capable of independently ('by itself') generating a backward path" because LSR 3 "transmit[s] a backward path based on the 'bidirectional setup' information received from LSR 1," such as a "bandwidth designation" in the forward message)); (Ex. H, 12-23-2008 Appeal Brief at 6-8 (same)); (Ex. L, 5-29-2009 Notice of Allowance).

Brazos ignores this prosecution history in its opening brief and contends that Juniper's construction should be rejected because it "excludes [a] preferred embodiment" in the specification. (Br. at 19-20). But an applicant need not claim every embodiment in the

specification. *Pacing Technologies, LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1026 (Fed. Cir. 2015) (“every claim does not need to cover every embodiment”). And here, the ’140 patent includes embodiments that do not use routing information in the forward request. (3:12-15) (“When, however, no routing information is contained within the path parameters, the destination device is operable to query a local database associated with the device to obtain routing information.”). Moreover, as explained above, the applicant expressly stated that the “by itself” and “independently” limitation were intended to exclude the embodiments that use routing information from the scope of the claims. (Ex. G, 12-01-2007 Claim Amendment at 17 (applicant stating that the amendment is “intended to *exclude from the claimed subject matter embodiments* in which the setup request provides specific routing information for the backward path.”). Because the applicant added the “by itself” and “independent[ly]” limitations to distinguish the prior art and stated what that phrase meant—namely that (as reflected in Juniper’s proposal) the backward path must be generated without the use of routing information in the forward request—Brazos cannot now reclaim the broader scope it asserts.⁷

V. U.S. PATENT NO. 7,620,273

In optical telecommunications networks, data is transmitted through fiber-optic networks as signals encoded in light. Through “multiplexing,” multiple channels or wavelengths of light—each wavelength carrying a different signal—can be transported using the same optical fiber link,

⁷ The Court should also adopt Juniper’s construction because Brazos’ interpretation of the claims fails to give meaning to all terms of the claim. *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1378 (Fed. Cir. 2009) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”). Although Brazos fails to identify what it contends is the plain meaning of the phrases under construction, Brazos treats the “by itself” and “independently” limitation as merely requiring that the backward message be generate separately from the forward message. (Br. at 19-20). But the claims include other language reciting that the backward messages is “separately generated” from the forward message. (Claim 1). Thus, Brazos’ interpretation cannot be correct because it does not give meaning to the “by itself” and “independent[ly]” language.

greatly increasing the amount of data transmittable over an optical network. The '273 patent explains that it was known that “signals within links of a ULR network can go extremely long distances without being processed.” (1:20-21). At the time of the purported '273 invention, the term “ultra-long reach” or “ULR” referred to links having transmission distances of over 1200 km or 740 miles. (*See* Ex. K, WSOU-JUNIPER0001522 at 1749).

The '273 patent describes an acknowledged advantage of minimizing the processing performed on each signal: “[t]he fewer times a signal needs to be processed, the less expensive the link will be when built and operated.” (1:21-23). In travelling long distances, however, an optical signal being transmitted may need processing, for example by a “regenerator” as described by the '273 patent. (1:31-35). The '273 patent explains that “existing electronic cross-connection designs still require that an individual processing unit (e.g., an optical-to-electrical-to-optical (“OEO”) regenerator) be dedicated to each wavelength within a link,” leading to the undesirable result of “waste of resources because signals within a ULR link may not need to be processed at all at any given ‘node.’” (1:31-36).

The '273 patent describes the “present invention” as “methods and devices for improving cross-connections include an optical connection device comprising one or more optical processing units and an optical switch adapted to connect at least one of the units to one or more optical signals based on a characteristic of each signal. Only when the characteristics of the signal indicate that processing is needed is a processing unit connected to the signal.” (1:64-2:6).

A. preambles of claims 1 (“A connection device”) and 2 (“A router”)

Brazos’ Construction	Juniper’s Construction
Plain and ordinary meaning	The preambles are limiting

The preambles of claims 1 and 2 of the '273 patent are limiting. They describe important characteristics of the claimed invention, were relied upon during prosecution to distinguish prior

art references, and were relied upon by the examiner in the Notice of Allowance. As the Federal Circuit has explained, “clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention.” *Catalina Mktg. Intl., Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002).

The preambles of claims 1 and 2 recite key characteristics of the claimed invention. Claim 1 recites “A connection device comprising” a set of three features, and claim 2’s preamble recites “A router comprising” and an *identical* set of three features. Without the preamble limitations, claims 1 and 2 would be identical in scope—a disfavored, and here incorrect, result. *Novartis Pharmaceuticals Corporation v. Accord Healthcare Inc.*, 387 F. Supp. 3d 429, 436–37 (D. Del., 2019) (rejecting the argument that the preambles were not limiting because “[a]ll three independent claims would have the same scope if the preamble did not add limitations into ‘said subject,’ a disfavored (and here unwarranted) result.”) (citing *CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (“[W]e must presume that the use of these different terms in the claims connotes different meanings.”)). Brazos’ argument that the preambles are “merely statements of intended use for the invention that identify the type of devices in which the invention may be used” should be rejected, because it leads to the untenable result that claims 1 and 2 are identical.

In addition, the patentee repeatedly argued that the claims were distinguishable over the cited prior art because the prior art “fails to teach or suggest a connection device” as required by the preamble of claim 1. (Ex. K at WSOU-JUNIPER0001949, Nov. 6, 2006 RCE at 7; *id.* at WSOU-JUNIPER0001972, Mar. 21, 2007 Response at 6). The patentee’s clear reliance on the preambles during prosecution to distinguish the prior art confirms that the preambles are claim

limitations. *See, e.g., Bass Pro Trademarks, L.L.C. v. Cabela's, Inc.*, 485 F.3d 1364, 1369 (Fed. Cir. 2007) (finding that “vest,” which was only recited in the preamble, was a limitation where preamble was added during prosecution and “patentee procured the patent based on the ‘unique combination of vest and pivotable seat member’ stressed in the prosecution history”).

Moreover, the ’273 examiner made clear that the preambles were considered as claim limitations in the Notice of Allowance. The examiner stated that “[t]he prior art does not show or fairly suggested the claimed invention of a connection device and router, with related method having the claimed structure and claimed limitations.” (Ex. K at WSOU-JUNIPER0002059, July 1, 2009 Notice of Allowance at 2). This further establishes that the preambles of Claim 1 and 2 are limitations. *See, e.g., Arendi S.A.R.L. v. Google LLC*, 882 F.3d 1132, 1136 (Fed. Cir. 2018) (“Here too, the examiner’s ‘Reasons for Allowance’ made clear that the examiner and the applicant understood what the applicant had changed, and what the claim amendment required.”).

VI. U.S. PATENT NO. 8,284,656

VPLS is a technology that makes it possible for provider nodes placed at the edge of the VPLS network to connect customer equipment located at different locations so as to create a logical local area network (LAN). For example, using VPLS an employee may connect to his or her company’s LAN from home, the office or other locations.

The ’656 patent is directed at “[a] system and method for multi-nodal APS (MN-ASP) protection switching for virtual private LAN service (VPLS) using a redundant pair of PE (provider edge) nodes.” The system of the preferred embodiment is shown in Figure 3:

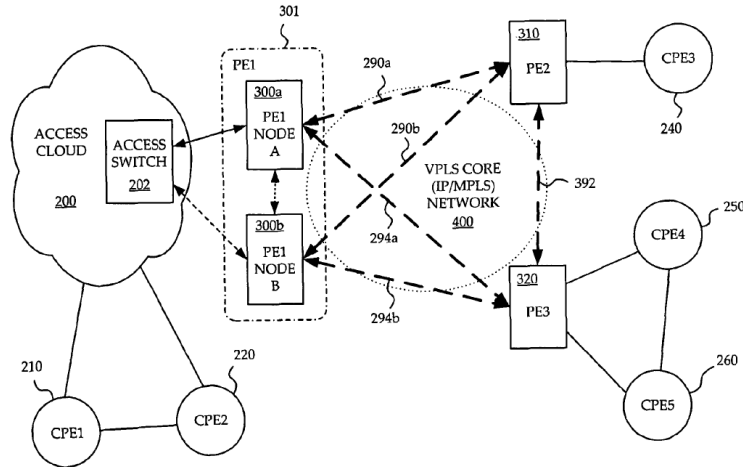


FIG. 3

(Fig. 3). The '656 patent configures provider nodes at the edge of a VPLS network with automatic protection switching (APS) to make them more reliable. (1:35-37, 3:7-16). As the patent explains, APS was a well-known mechanism for protecting against failures in the network by, amongst other things, switching from a working node (*e.g.*, PE 300a) to a protection node (*e.g.*, PE 300b) upon a failure of the working node. (1:40-42). While there were several basic types of APS (1+1, 1:1, and 1:n) at the time the patent was filed, the preferred embodiment employs APS "1+1." (3:12-16, 8:42-47).

The patent purports to solve a problem in VPLS networks that employ APS. Specifically, the patent claims that when a provider edge node fails, other edge nodes will “keep sending traffic to the de-activated provider edge node,” a problem which is known as “black-holing.” (1:40-42, 4:37-41). The ’656 patent purports to solve this problem by having the working node send a notification to other nodes prior to switching over to the protection node. (7:7:13-35).

A. preamble of claim 1

Brazos' Construction	Juniper's Construction
The preambles are not limiting	The preamble of claim 1 is limiting

Claim 1 of the '656 patent is reproduced below. The parties dispute whether (1) the preamble ends at the first instance of “comprising” (as proposed by Brazos) or extends to the colon (as proposed by Juniper); and (2) whether the preamble is limiting.

1. A system of redundant pair automatic protection switching at the edge of a Virtual Private LAN System (VPLS) network comprising a redundant pair of provider edge nodes comprising:

a first provider edge node that is a working node of the redundant pair before a switchover and a protection node of the redundant pair after the switchover, and

a second provider edge node that is the protection node of the redundant pair before the switchover and the working node of the redundant pair after the switchover; and

a third provider edge node possessing a media access control (MAC) address entry for the first provider edge node, previously learned by the third provider edge node, wherein the first provider edge node, when functioning as the working node, communicates with the third provider edge node, and, after the switchover in the redundant pair, sends an explicit request to the third provider edge node to flush said MAC address entry for the first provider edge node.

'656 patent, claim 1.⁸ Both parties agree that if the preamble extends to the colon, it is limiting.

Moreover, even if the preamble did end at the first instance of “comprising,” it would still be limiting for the reasons discussed below.

i. The Preamble Is Limiting Because It Extends To The Colon

While Brazos argues that the first use of the word “comprising” should cut short the preamble, there is no dispute that if the Court concludes that the preamble ends at the colon, then

⁸ In order to argue the preamble is limiting, Brazos rewrites the claims by adding indentations and paragraph breaks that do not exist in the patent. (Br. at 24-50 n.30). Brazos argues that these rewrites are necessary to fix errors in the patent. *Id.* But Brazos has not sought a certificate of correction and the Court should decline to correct alleged errors in the patent.

the preamble is limiting. Indeed, Brazos itself contends that the claim language between the first instance of “comprising” and the colon is limiting because it cites essential structure.

The preamble of claim 1 ends at the colon because the word “comprising” does not necessarily signal the end of the preamble. At least one court has concluded that the preamble ends with a colon, even where the term “comprising” is used earlier in the preamble language. *See NetJumper Software, L.L.C. v. Google, Inc.*, 2008 WL 835819, at *3–5 (E.D. Mich. Mar. 29, 2008) (finding that the preamble of an asserted claim encompassed the entire introductory paragraph preceding the first colon, even though it used the term “comprising” earlier in the introductory paragraph); *see also Application of Dean*, 291 F.2d 947, 951 (C.C.P.A. 1961) (The preamble “is all that portion at the beginning of the claim preceding the colon.”).

Reading the claim as a whole also indicates that the preamble should include everything up to the colon. The language prior to the colon teaches that the system is a VPLS network that comprises an automatic protection switching redundant pair of provide edge nodes. The language after the colon then proceeds to recite first and second provider edge nodes (that form the redundant pair) and a third provider edge node that is part of the VPLS network but not the redundant pair. If the preamble was to end at the first comprising, the body of the claim would read “a redundant pair of provider edge nodes comprising:” and then set forth three provider edge nodes, only two of which are part of the redundant pair. Thus, the preamble extends to the colon and is limiting because both parties agree it recites limiting structure.

ii. The Preamble Is Also Limiting If It Ends At The First Comprising

Even if the Court were to agree with Brazos and conclude that the preamble ends at the first instance of comprising—*i.e.*, “A system of redundant pair automatic protection switching at the edge of a Virtual Private Lan System (VPLS) network comprising...” —the preamble is still limiting because it is “necessary to give life, meaning and vitality to the claims,” as discussed

further below. *On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1131, 1343 (Fed. Cir. 2006).

(a) *The Preamble Describes A Defining Aspect Of The Invention.*

“In general, the scope and outer boundary of claims is set by the patentee’s description of his invention.” *On Demand*, 442 F.3d at 1338. Thus, where the preamble “states a necessary and defining aspect of the invention” it is limiting. *Id.* at 1343; *see also Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1358 (Fed. Cir. 2012) (holding that the preamble phrase “rotary cutter deck” was a limitation where the specification referred to the “present invention” as “a rotary cutter deck”). Here, a review of the entirety of the ’656 patent reveals that the preamble’s recitation of “a system of redundant pair automatic protection switching at the edge of a Virtual Private LAN System (VPLS) network” states a necessary and defining aspect of the invention. The preamble is thus limiting.

The alleged inventions of the ’656 patent are unambiguously directed at “automatic protection switching for a virtual private LAN service (VPLS).” (Abstract). The “Field of the Invention” explains that the invention relates to a “method for a multi-nodal APS (MN-APS) redundant pair of PE (provider edge) nodes for a virtual private LAN service (VPLS).” (1:12-18). The Background of the Invention is directed at describing VPLS networks (*id.* at 1:21-3:6) and automatic protection switching (“APS”) (*id.* at 3:7-4:30). The Summary of the Invention explains that “***the invention*** provides for a system of redundant pair automatic protection switching at the edge of a VPLS network.” (1:57-60) (emphasis added). And every embodiment in the patent is directed at a VPLS network with a redundant pair of provider edge nodes configured for APS. In fact, while the patent concludes by stating that the redundant pair of edge nodes may be configured with different types of APS schemes, for example APS 1+1, 1:1, 1:n, it does suggest that the invention can be employed without VPLS and APS. (8:39-42) (“in general any number of APS

configured redundant pairs may be used for access to the VPLS networks”); (8:42-47) (“Although the preferred embodiment utilizes an MN-APS 1+1 redundant pair at the edge of the VPLS network, other kinds of redundant automatic protection switching could be used”).

The patent also teaches that the alleged invention is directed at addressing a problem associated with a VPLS network whose edge nodes have been configured with APS. It explains that when APS is “applied to VPLS to minimize traffic interruption” it creates inefficiencies: “After an APS switchover ... other provider edge nodes will keep sending traffic to the deactivated provider edge node until they relearn the MAC address mappings of the customer premises equipment of the newly active provider edge node.” (1:40-42, 4:37-41). The patent’s alleged solution to this problem was to have an APS configured node at the edge of the VPLS network send a “MAC flush” to other nodes at the edge of the VPLS network before a switching over to a protection node. (Abstract). Claim 1 should not be permitted to reach beyond VPLS networks and redundant pairs that are configured with APS because that was the particular problem the inventors were working on. *C.R. Bard, Inc. v. AngioDynamics, Inc.*, 2017 WL 2221179, *1 (D. Del. May 19, 2017) (preamble limiting because “inventors at bar were working on a particular problem, and it would be inappropriate to read the claims more broadly than the inventive context.”).

(b) *The Preamble Provides The Framework for the Claims*

A preamble is also limiting where it provides a framework for the claims. *See On Demand Mach.*, 442 F.3d at 1343 (finding preamble limiting because it states the framework of the invention). Here, the body of the claims recite a “first provider **edge** node” and a “second provider **edge** node” that are part of a redundant pair. The preamble delineates that the “edge” that is referenced in these limitations is the edge of a VPLS network by reciting: “a system of **redundant pair** automatic protection switching **at the edge of a Virtual Private Lan System (VPLS)**”

network.” In this manner, the preamble’s recitation of the location of the “edge” is similar to providing antecedent basis for the term “edge” in the body of the claim. This further counsels towards finding the preamble limiting. *See Bio-Rad Labs., Inc. v. 10X Genomics Inc.*, 967 F.3d 1353, 1371 (Fed. Cir. 2020) (body's reliance on preamble for antecedent basis “is a strong indication that the preamble acts as a necessary component of the claimed invention”).

In short, a redundant pair automatic protection switching at the edge of a Virtual Private LAN System (VPLS) network is a defining aspect of the invention and provides a framework for the body of the claims. The boundary of the alleged invention should not extend to non-VPLS networks or networks not configured with APS. The Court should find the preamble limiting.

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Respectfully submitted,

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